



Winner of the
productronica
innovation award 2021

Cluster Semiconductors: AP&S International - CleanSurF

Words of praise from Dr. Lothar Pfitzner, University of Erlangen

Starting in late 80th, a further improvement of clean environment was achieved by introducing local clean rooms, first SMIF pods, later FOUP in conjunction with 300mm wafer size production.

FOUP technology allows to develop integrated circuits down to critical dimension below 10nm. Here, the cleanliness of the inner environment has to be maintained. Particles of various origins and of minimum size and AMC down to molecular dimensions must be avoided throughout the entire manufacturing sequence. During all these operations, the cleanliness needs optimum conditions, requiring optimum cleaning throughout the use. Not only external particles, AMC and defects, but also internal generated ones, e.g. by chipping off from wafer and off enclosure surfaces, from edges, from gaskets and from residues of processes need to be cleaned. Overall, a highest production yield should be achieved – and maintained.

The innovative CleanSurF® cleaner ensures the targeted cleanliness. High throughput, optimum cleaning performance, maximum flexibility in use and attractive operating costs are claimed to be the advantages of the new tool, designed for both manual and automatic loading. Newly developed components contribute to the efficient cleaning performance and to shorter process times: An innovative nozzle concept with more than 50 controllable nozzles for DI water and for N2 nozzles, the compact footprint, the new carousel design, all add to a low cost-of-ownership. In addition, access from gray room and release of cleaned product into white clean room is an attractive feature. New SECS interface for data transparency and for comprehensive information regarding the cleaned FOUPs, and an easy recipe management is an interesting feature for optimum integration into the production environment.

In total, this equipment offers a bunch of interesting, convincing, and required features for future technology nodes. Therefore, we are proud to reward this innovation with the 2021 award in the field of “semiconductors”.